DOCKET FILE COPY ORIGINAL

Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

In the Matter of	)	
	)	
Advanced Television Systems	)	
and Their Impact Upon the	)	MM Docket No. 87-268
Existing Television Broadcast	)	
Service	)	

Sixth Further Notice Of Proposed Rule Making

Comments of the National Translator Association

The National Translator Association (NTA) is a non-profit volunteer organization dedicated to the preservation of free over-the-air TV in all areas of the United States. The membership is made up of organizations and individuals who are translator licensees, persons who install and maintain translators, primary stations that operate translators and others interested in the objectives of the organization.

While translator stations are found with many different technical characteristics and are installed in a wide variety of circumstances, there are three common patterns and the following comments should be considered with these in mind. Some translators are isolated and stand alone. Secondly, a significant number are relatively close to the primary station and fill in shadowed areas within the service area of the associated primary station. Thirdly, a large number of translators are in colocated groups providing multiple programs to the same area. Translator installations of this type are frequently found in chains with the second site, more removed from the city of the primary stations repeating the first site. In turn, the third site repeats the second and so on out to commonly four repeats, but we know of instances of as many as six. Such multichannel, multihop translator systems provide service to large geographical areas. While these areas are generally not densely

populated, the people there are relatively isolated and their need for an ample selection of TV programs is arguably greater than the needs of people in urban areas who have more direct access to news, education and entertainment. An example of an area with two such systems is given in Appendix A. Other such systems are described in comments from individual members.

In view of the importance of translators to rural America, the NTA regrets that the Commission did not see fit to engage the outside expertise and computing power necessary to factor translators into the equation when generating the draft table of DTV allotments and to protect them to the extent possible consistent with the objective of providing a DTV assignment to every full service TV station.

Translators as a Particular Kind of LPTV Station

The comments which follow are directed to the operation of translator stations. In the current FCC rules translators are treated as a particular kind of LPTV station with the requirements relating to the output of the station the same whether the station is an originating LPTV station or a translator. While the comments which follow are directed to the translator stations, they are not intended to imply that there should be special rules for the output characteristics of translators in the future. Rather, the comments relating to the output characteristics are equally valid for originating LPTV stations with translators continuing to be considered a particular kind of LPTV station with the distinguishing features related to the input.

Interference to and Displacement of Translators

The NTA is concerned that many close in translators will be displaced. We are also concerned that many rural translators will be impacted and the interwoven chains broken up, with the primary threat to this class of translators coming more from the suggested loss of channels 60 to 69 than from direct interference from new DTV stations.

Multiple hop translator systems must be crafted so that not only the output channels will not cause interference to other stations but also so that the input signals can be received without

interference from the colocated outputs. The FCC databases do not record the actual input frequency of a translator so there has been no way for the FCC to assess the impact of the loss of a particular translator on the whole system. A substitute output channel must not only be satisfactory with respect to its interference to other stations, per the LPTV rules, but the signal must be receivable at the input of the succeeding translator. This problem is made even more complex by the fact that chains of translators branch out in many instances. This is illustrated in Appendix A.

It is very common for translator systems to be built with three, or even four, channels combined into one transmission line and antenna. The output channels are typically alternate channels, i.e. 58, 60 & 62 in one antenna and 64, 66 & 68 in another. Such a multiple channel but still relatively narrow band antenna is not significantly more expensive than a single channel antenna and only one transmission line is required. Not only is the direct cost of systems components minimized but the structural requirements of the supporting structure, primarily wind load, are very significantly reduced. If one channel in a group becomes unusable and a change is made to a channel out of the group, then an additional transmission line and antenna with the attendant wind load must be accommodated. If three channels become unusable for any reason, such as channels in the range 60 - 69 going to other services, it is unlikely in most instances that three channels with alternate spacing could be found amongst the lower channels. Generally three antennas and transmission lines would be required.[1] The extra wind loading, coupled with the fact that the EIA structural standards for towers now call for considerably more conservative strength calculations than when many translator related towers were built, means that strengthening, or even replacement of many towers, would be required before the antennas and transmission line required to accommodate channel changes could be installed.

The Sixth Further Notice suggests as one possibility that translators, and indeed all LPTV stations, be allowed to continue to uses channels 60 -69 after the spectrum is allocated for other purposes up to the time when the new use actually starts in their vicinity. We have "been there and done that" and it was an unsatisfactory experience. UHF translators were originally confined to

---

1. Broadband panel antenna arrays with one transmission line may also be a solution in some cases, although panel antennas with a gain comparable to conventional antennas have much higher wind loading.

channels 70 to 83. When these channels were removed from the TV band, existing translators were allowed to continue operating on their original channels pending actual conflicts with new users. However, in short order the TV set manufacturers eliminated channels 70 - 83 from their new models and accessories were no longer made to cover the channels above 69; thus the use of channels 70 - 83 soon became untenable.

Incidentally, after channels 70 -83 were removed, translators were mandated to use channels 55 to 69. It strikes many people in rural America as patently unfair for the FCC to now force them to move again. The NTA accepts that the public interest may dictate a reduction in the spectrum allocated to free over the air TV after all stations are digital and there are no NTSC stations with their associated "taboos". However, we feel very strongly as discussed more fully in a later section, that the full band including channels 60 - 69 should be retained until that time.

Relief for Displaced Translators

The Sixth Further Notice in para. 71 states in part:

> "We propose to permit such low power stations to use any available channel provided interference is not caused to any authorized full service NTSC or DTV operations or to other authorized low power operations."

We thank the Commission for this positive statement and wish to offer the following suggestions in the spirit of this statement:

Displacement Procedure:

The displacement procedure currently available to all LPTV stations is very workable. This, coupled with an attitude in the LPTV Branch which is sympathetic to translator licensees with problems, has allowed most displacement problems to be solved promptly. We can only say the obvious: Keep the present policy in place. We do suggest one minor modification. The rules permit a relocation of up to 10 miles. There may be instances when the best solution to a problem is to

relocate a translator from one side of the area served to the other side and transmit in the opposite direction to the same area. It is suggested that the allowable distance for a site move in connection with a displacement application be increased to 40 miles with a proviso that the translator continue to serve substantially the same area.

Displacement Application Timing:

It is suggested that a translator be allowed to file a displacement application as soon as an application for a DTV station which will be in conflict (either receiving interference from or causing interference to a translator) is filed with the Commission. Filing early, rather than waiting for the DTV application to be processed to a CP, will give the translator the best chance of finding a replacement channel.

Up-dating of LPTV Interference Rules:

There is now some 15 years experience with the LPTV rules governing the permitted location of LPTV stations with respect to authorized TV stations, both full service and LPTV, and the interference ratios at protected contours. Based upon the accumulated experience it is now possible to suggest the following modifications which will increase the flexibility of the channel selection process and improve the probability of finding any needed displacement channels.

Specifically, we suggest that §74.705(b)(1) to (b)(4) & §74.707(b)(1) TO (b)(3) relating to site locations be deleted and new paragraphs be added at the end of §74.705 as follows:

> "The site may be within the protected contour of TV station provided only that the interference ratios of §74.705(d) are met within all populated areas considering both the horizontal and vertical radiation patterns of the LPTV transmitting antenna"

we also suggest the following be added at the end of §74. 707,

> "The site may be within the protected contour of an authorized LPTV station provided only that the interference ratios of §74.707(d) are met within all populated areas considering both the horizontal and vertical radiation patterns of the LPTV transmitting antenna."

Terrain shielding should become a normal procedure rather than a waiver. Unpopulated areas where the protected stations signal cannot reach, as demonstrated by path calculations such as the Langly - Rice method, should be excluded from areas where protection is required.

The power limit for translators should be changed from the present transmitter power limits to an ERP appropriate to the frequency band. The present policy of limiting transmitter power goes back to the very beginning of translators and was adopted as the simplest method of providing reasonable assurance of non-interference to others. In the intervening time, and particularly with the coming of the desired to undesired signal ratios as part of the LPTV rules, ERP has become one of the most important parameters of a translator. It is the ERP of a translator, not its transmitter power, that governs its potential for interference, and it is thus more logical from an engineering point of view to set a maximum ERP rather than a maximum transmitter power. With the much increased sophistication of the interference calculations which are routinely done there are no impediments to changing to an ERP limit.

The NTA has not reached a consensus on proposed values for the ERP limits in the various bands but will offer suggestions. There is one circumstance where a higher ERP than whatever limit is established as the norm might be desirable. If a translator is faced with receiving interference from a new DTV station, but could survive with higher power so that its signal achieves an acceptable D/U ratio vs. the DTV station, then a higher ERP should be authorized. It is suggested that permissive language such as:

> "In individual cases the FCC may authorize the use of a higher ERP upon a showing that such higher ERP is required to keep the LPTV signal above the threshold of interference from a DTV station,"

We recommend that the channels reserved[2] for possible transfer to Land Mobile operations in several major cities but which have been in limbo for many years be returned to TV use. This

2. Docket 85-172, The cities are New York, Los Angeles, Chicago, San Francisco, Philadelphia, Washington, D.C., Houston and Dallas.

would certainly help to provide relief for displaced translators in the general vicinity of these cities.

Use of Compression:

One way to deliver the same number or even more standard definition programs to translator served areas is to make use of the rapidly developing compression techniques. It is assumed that translators will soon be authorized to transmit signals in accordance with the DTV standard which presumably will be adopted from the Fifth Further Notice (more or less the Grand Alliance System). However, we recommend that translators also be allowed to use other compression and digital modulation schemes. The reason for asking for this flexibility is as follows:

In the first few years until DTV sets are ubiquitous any plan to use compression and digital modulation will require set top boxes in each home. Such set top boxes are rapidly being developed for MMDS systems and these systems are using techniques different from the Grand Alliance System, apparently favoring 64QAM modulation in general. A minor variation of the MMDS hardware would be suitable for use in translator systems. This hardware will predictably be available soon and at an affordable price. Compressed programs and digital modulation could be used in translator systems to relieve channel shortages as soon as the need arises, assuming the techniques common to MMDS systems could be used.

Translators for DTV

As soon as full service digital TV stations are on the air, there will be a need for translators to fill in or extend the coverage of many of these stations. It is assumed there is no policy question here, but, as a housekeeping detail, §74.736 should be amended as follows to permit the translation of DTV stations on an equal basis with NTSC stations,

> 74.736(a) "The license of a low power TV, TV translator or TV booster authorizes the transmission of the visual signal by amplitude modulation (A5) and the accompanying aural signal by frequency modulation (F3) or by the digital television standard." (Added words underlined.)

Such stations should meet the interference ratios of Appendix A of the Sixth Further Notice.

Conclusion

The NTA feels that the transition to DTV can be accomplished with minimal hardship, but only provided the full spectrum of channels 2 to 69 is retained until NTSC transmissions are no more. The several comments offered above will help to smooth the transition and hopefully are not controversial.

However, if channels 60 - 69 are removed in the near future there are two scenarios, both with unfortunate consequences. If translators are allowed to remain in this group of frequencies temporarily, they will quickly become orphans. If they are displaced there will be significant loss of service.

Reducing the spectrum available to TV when the DTV stations are temporarily doubling the number of originating stations and when there are certain to be problems not yet discovered is the most undesirable action which could be taken. The coming of DTV is such a major step (forward to be sure) that all concerned had better believe there will be totally unanticipated problems. Full service stations, regular LPTV stations and translators will all need room to maneuver to solve those yet to be discovered problems.

We urge the Commission above all to retain channels 60 - 69 as a full part of the TV spectrum through the entire transition period.

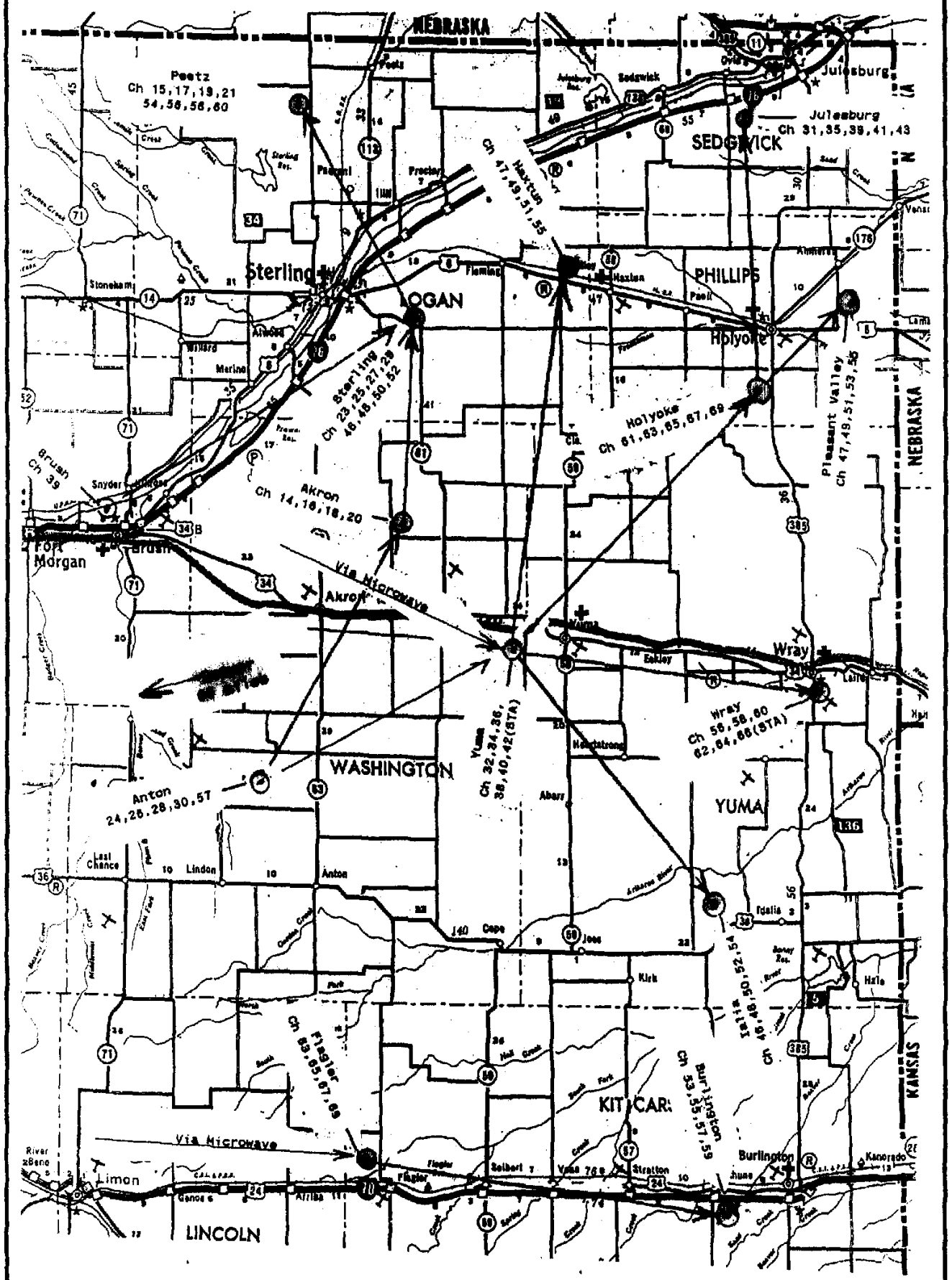
Respectfully submitted,

B. W. St. Clair

President, National Translator Association

November 21, 1996

APPENDIX A



Northeast Corner of Colorado
120 miles N - S by 85 miles E - W

Counties of Phillips, Sedgwick, Yuma, Logan, Washington and Kit Carson.
This area of Colorado has 12 translator sites spaced 25 to 30 miles apart. The terrain is flat to gently rolling. The towers range from 250 to 400 feet high. The systems were built before there were any full service UHF stations in Denver. There are now an increasing number of problems with interference from Denver UHF stations on Ch 14, 20, 3, 59 and expected from Ch 25 which is under construction. Even before the coming of DTV there is a need to make channel changes.